

Experience with
HUMAN FACTORS
in Agricultural
Areas of the World



EXTENSION SERVICE and OFFICE OF FOREIGN AGRICULTURAL RELATIONS
U. S. DEPARTMENT OF AGRICULTURE

1018 (11-49)

FOREWORD

Due to widespread interest in the development of extension work in various countries in the world, a conference on Extension Experiences Around the World was held in the United States Department of Agriculture, May 16-20, 1949. It was sponsored by the Cooperative Extension Service of the Department of Agriculture and the Office of Foreign Agricultural Relations.

The conference was informal in character. It was made up largely of persons who are familiar with the agricultural problems and the living conditions of rural people in many countries throughout the world. In attendance were many persons who have had a rich experience in postwar rural reconstruction work and who, in various capacities, officially or otherwise, have had the opportunity to observe or participate in the development and improvement of agricultural and homemaking practices in many countries. The conference was organized on an area or regional basis with committees that evaluated the extension problems and recent developments and made suggestions regarding programs in various areas. A complete summary report of the conference is in process of publication.

The conference had as its objectives:

1. To outline systematically either the kind of problem the various countries of the world have or the problems for which they seem likely to ask for outside assistance and help.
2. To appraise the recent experiences these countries have had in extension and related educational fields.
3. Within the framework of a country's culture, to suggest the kind of extension approaches that seem appropriate to given types of problems.

It was generally agreed by those participating in the conference that successful extension work depends to a large extent on understanding local culture and working in harmony with existing cultural patterns in local areas. The traditional attitude toward ways of doing things must be understood by those who work in the extension field.

Because an understanding of different cultures is an important prerequisite in aiding the underdeveloped countries of the world to improve farm production and family and community living, this report of the Committee on Social Sciences in Relation to Extension Work is issued separately in advance of the publication of the complete report.

M. L. Wilson
Director of Extension Work

Contents

	Page
Introduction.	5
I. Introducing and Inducing Change in Folk Practices . . .	6
A. Societies differ in their value systems.	6
B. Societies are already organized.	7
1. Social institutions	7
a. Families	7
b. Maintenance institutions	8
c. Government	9
d. Some system of education	10
e. Religion	11
C. Locality groupings: Neighborhoods and communities	12
D. The status system and leadership	13
1. Disadvantaged people cling strongly to attitudes and beliefs.	13
II. Introducing and Inducing Change at the Top of the Social Structure	15
III. The Channels of Communication Between Scientists and Administrators and Folk Groups	17
IV. Continuous Appraisal as a Basis for Constant Adjustment in Programs	20
Conclusion.	21

EXPERIENCE WITH HUMAN FACTORS IN AGRICULTURAL AREAS OF THE WORLD 1/

The Contribution Sociology, Anthropology,
and Social Psychology Can Make to an Un-
derstanding of the Problems Involved

Introduction

An effective program consists of a synthesis of technical and practical knowledge. It also consists of the construction and operation of channels of communication between rural folk knowledge at one end of these channels and scientific knowledge and administrative authority at the other. Sociology, cultural anthropology, and social psychology are the social sciences that have developed knowledge of, and techniques for, analyzing and understanding the groups that live and work at the two ends of these channels. These sciences also possess the techniques that make possible continuous study of the interactions of the groups involved in the operation of an extension program.

Some of the knowledge and understanding that these social sciences can contribute are needed even before an extension program is launched. But successful operation of the extension program will automatically change the behavior of groups involved in the program, will almost certainly change the channels of communication between these groups, and thus will change all the situations that existed before the program was launched. Social sciences can therefore make a contribution to an extension program after it is launched, while it is in operation and while it is in preparation.

The very purpose of an extension program is to introduce change. In human relations it is impossible to foresee the effects of one change after another, hence there is no way of planning or plotting the program by a fixed blueprint such as is possible and feasible in constructing a bridge or a highway. It is within the function and capacity, and should be the responsibility of the social scientist to observe, analyze, and report upon the influences of changes that are accomplished and to make recommendations for the constant effective adjustment and readjustment of the extension program and processes.

Cultural anthropologists have made hundreds of studies of rural folk groups and folk cultures. Sociologists are constantly studying social structures and social processes. Sociologists and social

1/ Report of the Committee on Social Sciences in Relation to Extension Work, of the Conference on Extension Experiences Around the World, Extension Service and Office of Foreign Agricultural Relations, cooperating. May 16-20, 1949.

psychologists are constantly studying personal and group interactions. Out of the understanding they have developed and by means of the analysis techniques they have evolved, they are in a position (1) to analyze the groups involved in an extension program, (2) to analyze the relationships of these groups one to the other--that is, the channels of communication between them-- and (3) constantly to analyze and appraise the changes that have been accomplished and the progressive adjustments that are needed in the program in light of these changes.

In a report of this length, the best that can be done is to set forth principles and present a few examples of where and how these principles have operated in situations similar to those technical people will meet in the underdeveloped areas of the world.

I. Introducing and Inducing Change in Folk Practices

A. Societies Differ in Their Value Systems

Every society has certain practices and beliefs which the members of that society consider the most important and valuable things in life. Through the years, elaborate institutions have developed to safeguard and perpetuate these values, and the elders see to it that all young members of the society become thoroughly conversant and imbued with the beliefs that sustain these institutions. In the United States, a premium is put upon success and individual initiative, whereas many other societies minimize individual initiative by urging social conformity as tremendously important.

Thus there are two important points to remember in connection with the value system of any society: (1) It exists and is so deeply ingrained that to ignore it would be folly; (2) the value system of one society differs in many details from that of another society. Programs must be tailored to fit in with the value system of the specific group whose practices it is desired or necessary to change and to use that system.

These points become clear if we use an Arab society as an illustration. There the social values are based on the family, church, and village rather than on the individual. Tannous says, "To the fellah there is no segregation of his land and agriculture from his religion, social activity, family life, and community organization. This influence (of church, family, and community) extends also to such personal affairs as marriage, funerals, rotation of crops, and methods of cultivation." He adds, "Social control in these compact settlements is strong and effective, and the fellah will hesitate to take a new step independently. In facing such situations individuals manifest their community consciousness through such statements as 'The whole village is for the new idea,' 'The village is against this innovation,' 'I like what you suggest, but I cannot stand against my village.'" 2/

2/ Tannous, Afif I. Extension Work Among the Arab Fellahin. Farmers of the World, Ch. 7. Edited by Edmund deS. Brunner, Irwin T. Sanders, and Douglas Ensminger. New York. 1945. See pp. 78-100.

Anyone from a non-Arab society who compares the aforementioned traits with the values of his own society can readily see that he cannot approach an Arab community through an American value system. Any program must be fitted into the specific characteristics of a particular society and make use of those characteristics. There are far too many examples of programs, well-intentioned and unselfishly inspired, that fail because these basic cultural principles are ignored.

B. Societies Are Already Organized

A second principle of major importance in the task of changing folk practices is the recognition that societies are already organized to do for their members what those people think is important. Through the centuries, every people has worked out a way of life, a set of social relationships that is accepted as "normal" and considered to be the proper and right way of getting anything done.

We can understand this social organization better if we look at some of the parts of which it is composed, provided we recognize that each of these parts is interrelated.

1. Social institutions.— The social arrangements worked out over a long period of time to meet life's basic needs include:

a. Families, through which procreation is carried on and the cultural heritage transmitted to each succeeding generation.

Societies differ considerably with respect to specific family patterns, but universally we find infants born into a family circle in which parents or relatives have fixed responsibilities for the customary upbringing of the child. Anyone wishing to change established practices must know the important role played by the family and try to find the points at which the institution of the family can be made to serve the program of change. If parents can be really shown that their children will benefit by a different health procedure, then they may adopt it. If young people, before establishing homes of their own, can be taught new ways of doing things, they will be likely to pass on such practices to their own children.

In the United States most of us probably know something about the Chinese family as one of the ancient institution cultures. "Continuing the family line is the main concern of the Chinese farmer," says Martin Yang. "Children, parents, and grandparents are a tightly knit unit and when that unit or unity is imperiled, all members feel the disaster. Those who work on the farm, work for the whole family. Individual personal belongings are negligible, all is family property and the continuity of the family line depends upon the uninterrupted transmission of the family's common property. So strong is this value system that even though a man inherited nothing from his parents but

has accumulated all he possesses through efforts of himself and wife, he will leave his property to his children with the admonition, 'Keep it intact forever.'" 3/

One who assumes that any program of activity is possible when it contemplates merely training individuals to act purely as individuals, is doomed to disappointment in societies where families are the core units of culture. As Yang says, "The individual when he attempts to act in a purely secular fashion finds that he is enmeshed in a family structure which dictates that he do only his age-old assigned division of labor and do it for a family, not a personal objective."

b. Maintenance institutions, through which the material needs are met.

Every people has organized itself so as to insure a food supply, shelter, whatever clothing is deemed necessary, and transportation. In the simpler economies, such activities are primarily connected with the family institution, but along with advancing technology come a more complicated property system, greater occupational specialization, a marked division of labor, and social arrangements for producing the material necessities by joint effort and for distributing such products widely.

Any attempt to change methods of production, to equalize distribution, or to alter consumers' demands must take into account the existing maintenance institution. Property rights, for example, cannot be blithely ignored, nor can people be easily persuaded to eat what they consider to be unclean or what they revere as a totem. Furthermore, cash incomes are very small among most of the world's people, and they do not possess the economic capacity to pay for many of the implements, purebred stock, animal feeds, commercial fertilizers, et cetera that would-be reformers urge them to procure. In most peasant societies a villager prefers an extra strip of land to a tractor. He will say, "I can grow more food out of the land and can eat this food, but the tractor produces nothing out of itself." A tractor, of course, does save labor and make for more efficient plowing, but most peasant families already have a surplus of labor for the small farms they call their own. Therefore, any program of change, if it is to be successful, must face this reality, not just in terms of buying and productive capacity, but also in terms of the existing social arrangements governing economic activities.

An example of the resistance of a group of natives to the adoption of "wet rice" cultivation is cited by Linton. One of the Tanalan clans of Madagascar objected because irrigation practices would result in continuous farming of one tract and, as a consequence, would develop individual rather than group rights in land holdings.

3/ Yang, Martin C. A Chinese Village: Taitou, Shantung Province, Ch. 7. New York: 1945.

Such a development would lessen the importance of the "joint-family" not only in ownership but also in cooperative labor and mutual sharing. The clan did not deny the superiority of "wet rice" culture in producing maintenance goods, but it was resistant to an innovation that so drastically altered social arrangements that are sacred to it. 4/

Many similar instances could be cited. There are others, altogether too few, where administrators have tied their programs to existent local social structures and value systems and thereby facilitated adoption of new practices.

c. Government, which is supposed to maintain law and order, protect from foes without, and in general promote the welfare of the society.

In Western nations, governments increasingly become associated with programs designed to change the old established ways in favor of scientific, rational practices. But those societies where government by elders is the chief pattern are largely ruled by custom and tradition and tend to resist rapid change. Even so, every government, since it is essentially a social arrangement, has ways of reaching those within its territory and there is no escape from using it.

In some countries, the central government is in fairly close touch with its citizens and is a relatively effective mechanism for transmitting new ideas and initiating social change. In other countries, the people view government as nothing but a tax-collecting agency which takes, but gives little in return. The people of such countries are suspicious of governmental programs. This is a hurdle that a promoted extension program must jump because it must enter all underdeveloped areas through governments.

If government is to be an effective instrument in programs of change among the masses, it must work through local officials who are truly leaders in local areas. Progress comes faster and is surer when these officials are made intelligent about programs and given heavy responsibility for them. Let us note, for example, the approach that would need to be made in a Japanese village. Each village is generally subdivided for administrative purposes into from 6 to 12 local units called buraku. Each buraku has long been headed by an elected official, whose primary function is to maintain liaison between the village office and the buraku residents. These burakus are the age-old natural groupings of the people which have been converted into administrative units. They in turn are composed of kuru, also ancient neighborhood groups each consisting of from 5 to 10 households. Nothing comes into these local areas from the village, prefecture, or central government except through this official. To attempt to promote any program in a Japanese village without using these instruments of

4/ Linton, Ralph. The Study of Man. New York, London. 1936. See pp. 348-55.

social action and these units of local government would be little short of folly.

If the social sciences have anything at all to teach, they certainly have proved that popular acceptance of a program is in direct ratio to the degree that local representatives have participated in the conception and formulation of the program, and that progress comes faster when those who are supposed to be helped have something to say about the program in the beginning. Nations with colonial empires have learned, or partially learned, this lesson through painful experience. Anyone who doubts it should read Prof. T. S. Simey's revealing analysis entitled "Welfare and Planning in the West Indies." 5/

d. Some system of education, which is supposed to aid in the preparation of the young for adulthood by inculcating in them the basic social values, and in developing the skills necessary for participation as citizens and as economically self-supporting individuals.

In many societies, the institution of education conducts activities among adults and thus increases their personal satisfactions and social usefulness. The schools, which are the concrete expression of this widespread institution, become the channels for directing some social change. They frequently are busy conserving the past, but do at times bring their energies to bear upon solving local current problems. Rapidity of social change seems directly related to literacy and educational attainment, for these cultivate a questioning frame of mind and open up through pamphlets and books additional channels of communication.

Any program for change, therefore, should carefully assess the part the school can play. Far too often the school is a means of weaning the brightest boys and girls away from their local communities, when it should be more concerned with directing awakened interest on the part of the young into constructive efforts to improve local conditions.

Social change comes more easily when people have developed an experimental or educational point of view, a willingness to try a new practice before condemning it. As schools spread the scientific spirit, even though they may not train professional scientists, they lay a splendid foundation for local and national authorities to use in improving health, agriculture, and homemaking.

The experience of Mexico in launching and carrying forward her great movement of change is a good example of the need for schools and their use. A Federal Secretariat of Public Education was organized and a program designed to carry education to the Indian masses. Persons were first sent into isolated regions to familiarize

5/ Simey, T. S. Welfare and Planning in the West Indies. Oxford. 1946.

themselves with local conditions and to stimulate a desire for schooling. Then, when schools were organized, attendance was not confined to children, or the subject matter to literacy education. It was deemed necessary to educate adults as well as children, and it was recognized that the program of change included many types of activity--production, health and sanitation, land reform, and even the reorganization of communities. The first teachers were called missionaries and***were expected to play the combined roles of teacher, supervisor, administrator, research worker, and philosopher. 6/ Mexico's leaders recognized that their program of change meant change in the life of the masses, and that only the government could sponsor such a giant movement.

e. A religion, which represents man's adjustment to the uncontrollable forces of his universe, and seeks to orient the individual to these forces (God, Allah, spirits of many kinds) and to acceptable behavior toward his fellow men.

This orientation includes not only a set of beliefs and a means, through worship and sacrifices, of obtaining sufficient dynamics (a recharging of his spiritual batteries, as it were), but it also provides a set of intermediaries (clergy, priests) who stand between the worshipper and the deity and who interpret to the worshipper the will and attributes of the deity.

The history of every society is full of instances in which the intermediaries and the more zealous of the worshippers have opposed social change on the grounds that it was contrary to the will of God. But the records also show, and with increasing frequency in our own day, that the world's major religions are also playing an active part in ministering to the nonspiritual as well as spiritual needs of their adherents. Here, as in the case of government, much depends upon the attitude and training of the local religious leaders. Where there is a desire to change, precedents can be found in almost every religion that would give some religious support to the change. Tannous tells the story of how the installation of a village pump was accomplished in an Arab village after outsiders had absolutely failed in their attempts to accomplish this much-needed sanitary improvement. It was accomplished not only by patiently explaining that the iron pipes would not spoil the taste of the water or quickly drain all the water out of the spring and by demonstrating the labor-saving use of the pump, but also by quoting from the Koran--their Bible--that cleanliness was required from every faithful Moslem and that man should do his best to avoid the danger of disease. 7/

6/ Whetten, Nathan L. Rural Mexico. Chicago. 1948. See pp. 404-53.

7/ Tannous, Afif I. Op cit. See pp. 97-100.

C. Locality Groupings: Neighborhoods and Communities

Every society contains locality groupings that play an important part in the daily lives of individuals. In rural societies the neighborhood, composed of families living near one another, provides the basis for mutual aid, much social visiting, and the play activities of children. Extending beyond the neighborhood is the community, often a village, with which each individual feels closely identified and which frequently is the center of his little universe. He is susceptible to village opinion and many of his wants are satisfied locally.

In the local setting one finds the various institutional representatives in competition or in cooperation with each other. The "open sesame" to most homes may be through the family elders or the priest, the governmental authorities or the school teacher, the merchant or the physician. Knowing which institutions to stress on the local level grows out of understanding the community and its relation to the larger society of which it is a part. Programs with a community orientation have the greatest chance of success, since the appeal is not to people as separate individuals but as members of a going concern, a set of social relationships, in which all members of the group participate willingly.

Leonard describes such groups among the Bolivian Indians. He said the present-day Ayllus are small closely knit communal types of locality groupings which originally were held together by social and kinship bonds (clans). The most obvious solidifying force now is common ownership in land. Leonard says, furthermore, that except for the more accessible Ayllus in the Lake Titicaca basin, this fundamental unit of organization in the Bolivian highlands has undergone few fundamental changes in four centuries. The severe exploitation of the native peoples by outsiders has fostered in the Indian fear and distrust of other than his own immediate fellows. Out of this arose the general belief that his only chance for any remnant of social, political and economic security lies in his ability to remain a part of and among his own kind, for it is in the communal life of the Ayllu that he is a bona fide member of a social grouping composed of individuals whom he considers little different from himself. 8/

Within every community are a number of informal groups that come into existence as people gather to gossip, loaf, or drink. Often the same people come together periodically and share their views with each other, thus becoming a part of the gossip chain which has so much to do with the formation of public opinion. Any extension program should recognize such groupings and see to it that a correct interpretation is made to enough of the "right" people so that the word-of-mouth version aids instead of hinders the activities in view.

8/ Leonard, Olen E. Locality Group Structure in Bolivia. Rural Sociology, vol. 14, No. 3. Sept. 1949. See pp. 250-60.

Formal organizations also loom large on the horizon of many communities, and where the participation is widely representative or embraces those most influential, these groups can be used to advantage. A number of people can be reached simultaneously and are in position to give the weight of their backing once they become supporters of a program.

D. The Status System and Leadership

Every society has ways of ranking individuals either at the top, the middle, or the bottom of the social scale, and expects them to perform the roles appropriate to their social positions. The status system is directly connected with the social values which most of the people share.

Since every program needs leadership to carry it on, those responsible for it must do more than rely upon the institutional leaders previously mentioned. They should also include representatives of the various social layers involved in the program. A landlord is not necessarily the best spokesman for his tenants, nor can the disadvantaged farmer objectively appreciate some of the problems of the large landowner. The views of artisan groups in a village and those of the landed peasants may differ, and the village merchants and their coterie of followers may seriously oppose an uplift program that might seem to endanger their position. In general, the program's accomplishment will be greatly speeded up if it has the blessings of the "powers that be," but this alone will not guarantee program acceptance. This is where a broader representation proves of value. Witness the following (in establishing folk schools):

"Because no headway had been made within 3 months' time, it was necessary for the Director to visit the community. Upon his arrival he discovered that this three representatives had ignored 'Old Chang,' who was the 'head-eye' man of the community. A social get-together was immediately arranged to which 'Old Chang' was invited and accorded due respect. Within 3 weeks three folk schools were opened. 'Old Chang' gave his blessing and his full support once his position as 'the boss' of the community was recognized." 9/

1. Disadvantaged people cling strongly to attitudes and beliefs.- By and large, people under stress tend to cling strongly to their beliefs and regard an effort to change them as an increased source of insecurity. However, not all beliefs are equally strong. Some are more intimately tied with the sense of security than are others. It is therefore important to distinguish the fundamental beliefs from those of a more superficial character. As a rule of thumb, one should never attack the fundamental types of beliefs directly. If erroneous and incompatible with reality, the fundamental beliefs will themselves

9/ Yang, Hsin Pao. Promoting Cooperative Agricultural Extension Service in China. Farmers of the World, Ch. 5. (See footnote 2, p.

dissolve in the course of time, but nothing gives them life like a direct attack upon them. Their untruth has to be discovered slowly by the people and at the same rate at which the people are finding new sources of security. A belief upon which a person's security depends cannot simply be wiped out. Disillusion from the belief has to be accompanied by a shift of dependence upon a new kind of support. This means that remedial changes such as those called for in extension work should be planned in successive stages stretched over a period of time.

The extension worker who is trying to make changes within a culture may expect to find one of three attitudes in connection with his program: acceptance and cooperation, hostility and resistance, or apathy and indifference. It is important for him to realize that these three states of mind can exist and come to bear on him without the main driving force behind them having very much to do with what he does or says. The alert, cooperative, rational type of action is found when people have a reasonable basis for existence; but people under severe stress--physical, social, and psychological--characteristically react by having either a high degree of hostility and aggression which they will discharge on any convenient object that will not annihilate them by retaliation, or by being apathetic and indifferent and therefore not lift a hand to do much to save themselves. It cannot be stressed too much that behavior of this kind is reactive and almost reflexive among human beings. Therefore, the person who goes out to make changes within the culture of other peoples must expect to find these negative reactions when the people are suffering stress, which of course is the case in most of the underdeveloped areas across the world. One is doomed to failure and disappointment if he expects to be able to overcome resistance, hostility, or apathy quickly or by any single device or formula. A very long period of consistent and successive demonstrations of the person's reliability and integrity, and his capacity to produce results will be required. The hope needs to be on the cumulative effect and not on any one or two "shots in the arm."

The positive toeholds that exist in almost all communities, though they do vary in the cultural form, are the opportunity to create a greater economic or subsistence security; and to gain prestige and admiration, that is, for the individuals in the community to gain prestige and admiration by participating in a given activity or having something to do with it.

The best remedy for uncooperative, hostile, and resistant types of behavior is relief of the stresses that are causing these attitudes and actions. That is, one should try to cope with the fundamental causes and not with the symptoms, always bearing in mind, however, that neither one remedy nor a single dose is going to do the job. If the program of introducing a change is successful, then not only will the change itself take place, but a whole series of repercussive changes will result from it which markedly alter the picture.

The successful operation of this process was illustrated among the Navajo Indians a few years ago in an attempt to change their breeds of sheep. It was impossible to convince them to follow the type of information that had been thoroughly validated by scientists. They were fearful that they were being tricked by outsiders whom they had not invited into their midst. Only after a few producers had been induced to use one-half of their grazing land for the production of their old type and the other half for the new type, with a firm financial guarantee of no loss, were the new breeds allowed to prove their superiority in the production of both wool and mutton. Once the new practice was understood, however, the gates to other accomplishments were opened, because the fear, even hostility, of a disadvantaged group had been dispelled by a willingness on the part of the scientist to compromise and wait for proved results.

II. Introducing and Inducing Change at the Top of the Social Structure

Extension and all other large organized programs must find their way into the economic and social structure and practices of the underdeveloped areas of the world through the medium of the governments of the nations within whose boundaries those areas exist. Therefore, an understanding of, and work with, groups of administrators and technicians who function at the top end of the channels of communication is as important as an understanding of the folkways and social structure of the farm people at the other end of the channels. These groups of administrators and technicians in practically all areas include the national rural-life leaders who have the status and prestige needed not only to launch but to sustain and operate programs of change and improvement.

Like similar groups all over the world, the status and prestige of the groups of administrators and technicians are part of the social structure and culture of their societies. Like every other status group, they have accepted and sanctioned ways of doing things which must be used, must often be mobilized, and sometimes must be changed.

In some ways the established patterns of behavior of these groups are more difficult to change than are the folk practices of the common people, chiefly because personal and professional prestige is at stake. Their members have come into possession of prestige and power partly because they have become qualified by either political activities or technical training. They may not be persons with a large body of knowledge and an understanding of the people in the underdeveloped areas of their countries, but they are educated, influential, and powerful. To the extent that change and improvement are necessary in their ideas, understanding, and operational behavior, no matter how delicate the task such change and improvement are necessary. Not to utilize their prestige and power and to build upon their past accomplishments is to violate cultural processes. Not to help improve their knowledge and practices is to block or impede the channels of communication by which

extension programs reach the people they are designed to assist. Like all cultural change the components of change are complex in these groups, and the process of change necessarily is evolutionary.

The class structure of many areas of the world is such that it is scarcely conceivable that a farm-born and reared person will be represented among the technical and governmental leaders. Nonfarm persons must and do perform the roles of leadership in all agricultural programs. They may or may not be theoretically trained, but they are seldom, if ever, practically trained for these roles. Nevertheless, they must be depended upon as the channels through which, and the instruments by which, programs of change and reform are initiated in the agriculture and life of the farm people. To ignore them is impossible; not to understand them as a culture group would be to defeat any and all programs.

In countries in which few or no farm youth receive college or even high-school education, the surest program of change would be to construct a professional ladder by means of which farm youth could and would climb from the level of their folk knowledge to the levels of science. They would then know their way back down the channels of communication to the folk from which they came.

The construction of such a professional ladder, however, necessitates an integral program of education and training from grade schools, through high schools, to college, and this cannot be done quickly. Until a small stream of farm boys and girls with the knowledge of the folk practices and values of the common people has passed through grade school, high school, and college, and these young people have become members of administrative and technical groups at the top of the channels of communication, others must be worked with and depended on.

It cannot be too strongly emphasized that these administrative and technical groups are an integral part of the social structure and culture of every country, that they have traditional and established ways of doing things, have status, prestige, and power; and that they are leaders. They are the vehicles through which extension programs must enter the country, and they must be depended upon to guide and operate the programs once they are established. They must be used and must be understood.

In broad terms, the following are part of the social structure and folk culture of these top-level groups in most of the countries that include the underdeveloped areas of the world: 1. Ordinarily, they are persons who were not born and reared on farms. 2. They are few in number and generally highly centralized in both location and organization. 3. The folk lore of the class to which they belong, and indeed of their whole society, does not assume that they will communicate freely with the farm people whom extension programs are designed to serve. 4. One of the symbols of their prestige is that they do not work with their hands or talk the language of manual workers or farmers. 5. In many cases the economic and political structure

of their culture has dictated that they chiefly serve special segments of the farm population instead of serving all of the farm people.

6. In their official capacities they are burdened with many duties of inspection and other police functions. 7. Frequently, neither their technique nor experience has helped them to understand the simple people in isolated rural areas, or to be experts in constructing and operating channels of communication.

These characteristics are not listed as criticisms of persons or groups, but merely to emphasize that no extension program can effectively enter the lines of communication between technicians at the top and practicing farmers at the bottom without passing through the culture groups that constitute the national rural life leaders of all countries; and further to emphasize the fact that the traditional attitudes and functioning operation of these groups are just as truly a part of the country's culture as are the folk practices and attitudes of the farm people of the country.

Extension programs will work effectively to the extent that these groups (a) have a combined knowledge of folk practices and science, (b) have a thorough knowledge of the lines of transmission between science and folk knowledge and between scientists and the folk peoples, and (c) be thoroughly capable of communicating their scientific and technical knowledge by means of all levels of communication through which extension programs must pass from top to bottom and bottom to top. Furthermore, only after this process has worked for a period of time will psychological impediments to communication disappear.

In the meantime, scientists and experts from other areas of the world must and will be working side by side with the administrative and technical groups of the nations within whose boundaries lie the underdeveloped areas. In such cooperative work it is imperative that the foreign experts be sympathetically cognizant that (1) they, as truly as those who work with the simple folk at the grass roots, are working with the processes of cultural change; (2) the people with whom they work have both personal and professional self-respect which must not be violated; and (3) even though the technical and administrative groups of the country may not be as thoroughly trained in the sciences and administrative procedures of extension programs as are their foreign collaborators, they undoubtedly have a far greater knowledge and understanding of their own country, its people, its governmental structure, its social classes, and its customs and traditions.

III. The Channels of Communication Between Scientists and Administrators and Folk Groups

It has been made clear that extension plays the very important role of a dynamic medium of communication between rural folk on the one hand and scientific and administrative authorities on the other. For extension to bear its desired fruit, it must maintain a smooth

functioning of this two-way traffic: From the farmer to the scientist and administrator, problems and field experience; and from the scientist and administrator to the farmer, improved practices and techniques. The extension program will suffer to the extent that the channels and techniques of communication between these two groups are inadequate or ineffective. Social science is in a position to make a fundamental contribution to extension in this respect. Its analyses of group relations is a constant reminder of the significance of efficient means of communication and the necessity for them. The knowledge it affords keeps the authorities concerned alert to the possibility of adopting more effective techniques continually. Social scientists, therefore, are equipped with the knowledge that enables them to make a thorough analysis of the channels and techniques of communication that exist in specified situations. By virtue of such analysis, they are able to make pertinent and specific observations, such as--

1. Each culture, and sometimes a region or a community within a culture, has its peculiar means of communication as well as those common to other cultures. It must not be taken for granted that the channels and techniques of one culture necessarily exist in another, or that they would function effectively if they were introduced. To illustrate, written literature is of little value among groups that are highly illiterate. Yet we have many examples of authorities indulging in the production of bulletins, pamphlets, and the like, supposedly for the benefit of such people. Other means of communication of advanced cultures such as mail service, the telephone, the radio, and the automobile, might be lacking or much restricted in the rural areas of less advanced cultures. Local means must be depended upon, possibly improved, until the more advanced techniques are established.

Examples of such local channels follow: (a) Womenfolk gossiping at the village bakery and the village well, and during social visits or while doing field work; (b) men gossiping in coffeehouses, at threshing floors, during social visits, and sometimes while doing field work; (c) news and views exchanged during the weekly market, at funerals, and during religious festivals; (d) the village crier, who informs the whole community of important news by shouting it out at night; (e) the church bell, which, when struck at a time other than at regular worship, is the signal for the community to be on the alert for an important event; (f) the homes of recognized community leaders, the carriers of prestige, where people gather for up-to-date and authentic information on various topics; (g) special carriers of messages; (h) the village writer, who specializes on writing petitions, letters, and the like, for illiterate folk; (i) the story reader or teller; (j) other key persons, such as the teacher, the priest, or the headman, who read the paper or other literature to the people and pass on instructions from authorities. Knowledge of these channels and instruments of communication should be had before programs are launched,

because the gossip groups can be used to develop suspicion and hostility against the programs as well as receptivity for them. To understand these types of groups and their behavior is as important as a knowledge of physical roads and paths leading into the areas where programs are to be launched. To obtain this understanding, we must turn to the social scientists, who are expert in analyzing these groups.

2. Every means or type of communication has two aspects, the tangible physical or material aspect, and the less tangible social or psychological aspect. The former differs little, whereas the latter differs a great deal from culture to culture. A thorough study of a means of communication with proper evaluation of its psychosocial implication is essential. A poster using a pig to illustrate the essentials of good feeding would certainly defeat its own purpose if used in Muslim communities. An illustration based upon the butchering of a cow would be equally ineffectual among the Hindus. When, some 20 years ago, King Ibn Saud of Saudi Arabia introduced the telephone into his country, he was strongly opposed by the religious leaders on the ground that it was the work of the devil. The wise king established that efficient means of communication in the sanctions of his people by making it transmit a verse from the Koran, Allah's Book. That proved that the telephone could not be an evil instrument.

3. The personal touch in human relations is an outstanding characteristic of most folk cultures, where the material aspects of living are not advanced. This trait could very well be utilized by extension as an effective means of communication. In such cultures, ideas and techniques that are transmitted through formal, official, businesslike channels are likely to fall upon deaf ears and blind eyes. The people might do something in response to such an approach, but they would do it as a superficial gesture of compliance, rather than as the expression of a genuine, motivated desire to adopt the new practices.

The effectiveness of the personal touch is well illustrated by the following examples of statements that are heard in the villages of the Middle East: "Here I come in person to appeal to you to do this, and I know you will not turn me away with an empty hand!" "For your sake, my friend, I will do anything; you order and I will obey!" "For the sake of my old beard, don't oppose this community project on which we have all agreed!" "This is not a usual order; it is a personal letter from the Director of Agriculture, appealing to each of us in this village to use the new improved seed. Surely we are not going to refuse him this request, which is also for our good!" "I was received by the Director of Education in person, who inquired about our village school. He said he was going to visit us upon the completion of the new school building. We have to finish the job soon now!"

4. In simple folk cultures, demonstration is an important channel through which an improved technique can be transmitted effectively. These people don't have much of an economic margin that would permit

them to experiment with new practices and take the risk of possible failure. Furthermore, they have not built up a tradition of faith in what is written on paper and what is proposed by central authorities. Consequently, the local demonstration of a suggested improved technique goes very far in convincing the people of the validity of the proposal.

5. An over-all appraisal of this process of communication reveals that each culture has two systems of channels and techniques, one developed and utilized by the scientific, technical, and administrative authorities, the other developed and utilized by the rural communities. Each of these is deep-rooted and firmly established among its supporters, with its peculiar equipment of material facilities, institutions, behavior patterns, and emotional content. The two differ from each other to one degree or another, depending upon the pattern of the culture concerned. In the Middle East and in most Latin American countries, the degree of difference is striking, and represents the great gap that exists between the authorities and the great rural masses. One of the primary tasks of extension is to recognize and understand these differences, and then to work at bringing the two systems of communication closer, until they are geared effectively.

IV. Continuous Appraisal as a Basis for Constant Adjustments in Programs

Extension programs will induce and introduce change, thus not only practices but social relationships and attitudes will be changed. To know in advance what all of these changes will be is impossible, and since some of them will be chain reactions, constant analysis is essential to necessary constant adjustments. If hostility develops at either the top or the bottom of the lines of communication or within them, that fact needs to be taken into account immediately. If it becomes apparent that lines of communication are not adequately carrying through from top to bottom or bottom to top because of leaks or blocks, quick rectification is essential in order to forestall hostility or discouragement.

The social scientist's role is constantly to observe, analyze, and understand these processes. To do so, he should not be in an administrative position, but instead be free to study all segments of the total process of change and made responsible for doing so. If his position is an administrative one, he will almost certainly be restricted to one segment of the process and therefore not be able to make the observations and recommendations of which he is capable. He should, however, be a staff person, free to communicate and advise with all responsible administrators and technicians, including those in the highest authority. In such consultation he is the specialist who should be depended upon for an understanding of the beliefs and attitudes that lie back of present practices, and which of these it will be difficult and which easy to change. He should also know to what extent science is being accepted

and blended with folk knowledge. His analysis must be sufficiently precise and, especially, sufficiently current to spot chain reactions and keep the program in continuous adjustment. By no means the least of his contributions should be a continuous appraisal of the extent to which the knowledge and desires of the peoples at the bottom of the channels of communication are traveling upward and being interpreted to technicians and administrators.

As important and essential as is the social scientist's advanced appraisal of social and cultural situations before programs are initiated, far more important is his special role as a member of a team. It must be kept in mind that this team will include not only outside technicians but all the highest authorities and best technicians of the country and the leaders of the folk groups that extension programs are designed to serve. Because human relations are dynamic, the social scientist has learned that his chief task is to study people and programs in action. To do this effectively, he must learn what the human relations, attitudes, and practices are before programs are launched and what desired changes are contemplated. He must analyze constantly what has happened to these human relations, attitudes, and practices in the process of change. Such an analysis is his greatest single contribution to the other members of the team on which he works.

Conclusion

In conclusion it should be stated forthrightly that to the extent that marked change (progress) is accomplished in the development of the natural resources and the economics of the underdeveloped areas of the world, drastic change in the social organization and established patterns of life of the people in these areas will also be changed. These patterns of life are sanctioned by beliefs that their customs and practices are good and to observe them is the right way to live. Leader-follower patterns will be changed, old social institutions will be disturbed, even religious beliefs will have to change. It is not impossible that more harm than good could result unless the changes are initiated and accomplished with the greatest understanding that can be obtained or developed.

The knowledge of sociologists, anthropologists, and social psychologists will never be as exact as that used by the engineer or biologist, but this committee of sociological scientists agrees with President Conant of Harvard. He said, "It is my belief that methods have already been developed to a point where studies of society by competent scholars can provide basic information to assist all those practical men who struggle with the group of problems we list under the head of human relations. *** Powerful tools are in the process of being forged by the scientist who studies man as a social animal. These tools can be used to further or to destroy certain types of behavior and certain social patterns." 10/ With him we believe that policy makers in government,

10/ Conant, James B. The Role of Science in Our Unique Society. Science, vol. 107, No. 2769. Jan. 23, 1948. See pp. 80 and 81.

business, and education must be increasingly aware of the assistance they can receive from those who study man and society. In no field of human behavior can they receive, or do they need, greater assistance than in programs designed drastically to change the economy and culture of the underdeveloped areas of the world.

/Signed/

Irwin T. Sanders

University of Kentucky

Alexander Leighton

Cornell University

Douglas Ensminger

Extension Service, U.S.D.A.

Afif Tannous

Office of Foreign Agricultural Relations, U.S.D.A.

Clayton Whipple

Office of Foreign Agricultural Relations, U.S.D.A.

Carl C. Taylor, Chairman

Bureau of Agricultural Economics, U.S.D.A.

